Experience. Outcomes.

Ciena Government Solutions

Trusted, reliable, and secure hardware and software solutions that enable agile communications infrastructures to advance every mission.

Creating Agile, Automated Mission-Centric Networks

Government agencies are in the process of modernizing IT and communications infrastructure to enable new services, speed mission response, and improve cyber resiliency. Older networks based on legacy architectures do not effectively support the performance demands of cloud applications, virtualization, or proactive cyber operations. As the network specialist, Ciena collaborates with customers worldwide to unlock the potential of their networks and fundamentally transform the way they operate.

Innovation for the Cyber Domain

Existing architectures were designed at a time when mission-specific networks were the norm, 10G was 'massive' bandwidth, and mission-specific data was predominately stored on site. Times have changed significantly. Cybersecurity risks have escalated to the point of not when, but how and where a breach will occur. More and more data has moved to data centers and cloud-based applications, and coordination across entities and networks is mission-critical. These changes impact how we use the network. Network traffic patterns have shifted from unpredictable to deterministic paths between user and data center and increased the volume and variety of data transiting the network. At the same time, networks are being consolidated to provide better command and control and improve the ability to address increasing cyber threats. New network solutions leveraging software technology in the form of SDN and NFV are being tested and deployed as a means to provide an agile and automated network resource that gives government network operators the opportunity to truly innovate how they think about and use networks as strategic mission assets (vs static dumb pipes). It is time to go beyond upgrading existing architecture and evolve your network into a strategic asset to improve mission success—both today and tomorrow.

Scalable, Responsive Network Infrastructure

Ciena has applied its network expertise to develop the OPn® architecture, which represents an evolution of an optical and packet network scaled to exponential power—only achievable cost-effectively through the convergence of packet and optical layers into a single device. This architecture ensures the programmability of the network infrastructure layer to enable a real-time response to changing mission needs.

Software-Enabled Multi-Vendor, Multi-Layer Network Resource Orchestration

The right infrastructure is a critical foundation for an evolved, mission-centric network. Software that can configure and manage this infrastructure as a virtualized ecosystem of resources is an evolutionary step toward a fully virtualized network-as-a-service model. Our Blue Planet software is at the forefront of developing and implementing industry-leading Software-Defined Networking (SDN) and Network Functions Virtualization (NFV) solutions that enable a truly innovative and evolutionary, approach to creating virtualized networks—without the need to rip and replace your existing network.

Our OPn architecture and Blue Planet solutions provide:

• Highly scalable, cost-efficient, programmable packet-optical infrastructure

• Trusted, reliable, and secure hardware and software certified to U.S. government standards to ensure secure and reliable mission data delivery

• SDN multi-layer, multi-vendor orchestration of network infrastructure through single-pane-of-glass management

• NFV orchestration to enable almost instant mission response

Ciena at-a-glance

• Deep experience in optical transport, switching, Ethernet, SDN software, NFV, and services

• Leading market share in North America for next-gen optical

• Extensive global reach

• Incorporation: November 1992

• Corporate headquarters: Hanover, MD

• Employees: ~4600 (worldwide)

• ~$2.3B revenues during FY15

• NYSE Listing: CIEN

A Trusted Partner:

• Serving 80 percent of the world's largest service providers, including AT&T, CenturyLink, Comcast, Sprint, Verizon, BT, Colt, Vodafone, Liberty Global, Telstra, and Embratel

• Major provider of network services to the U.S. Department of Defense, including DISA

• Enabling 100G+ national and cross-oceanic optical transport for Internet2 and ESNet

• Real-time network infrastructure analytics that enable continuous monitoring and policy-based optimization

Whether agencies are implementing cloud solutions, building inter-data-center networks that store vital mission information, connecting agency locations, or building WANs that ensure national security, Our OPn architecture and Blue Planet software enable agencies to surpass basic modernization and apply innovative network solutions to evolve to virtualized networks of tomorrow, today.

Solutions for Government

We build products and solutions focused on the belief that the network needs to transform from a rigid, inflexible, static resource to an intelligent, secure, dynamic, and mission-centric strategic tool.

With the growing adoption of cloud-based applications, today's network designs must be intelligent, resilient, and flexible to respond to application needs and provide predictable performance to drive mission success while ensuring sensitive data is protected.

Assured Networking

Many government networks carry highly sensitive data that can affect national security, public safety, or citizen privacy. Our Assured Networking solution for government offers trusted, reliable, and secure solutions to address four basic data protection needs: secure access, appropriate data encryption, separation of network entities, and continuous network monitoring. It offers a highly available network infrastructure that can intelligently detect and compensate for network service issues to create a resilient, always-on mission asset.

Figure 1. Branch or base Ethernet connectivity

Network Infrastructure Modernization

Modern campus and base environments have multi-technology networks with application-specific hardware and connections. To improve cyber resiliency and increase cost efficiencies, next-generation networks must provide reliability and resiliency for data connectivity along with data security and network simplicity, economy, and scalability. Ciena's industry-leading converged packet-optical platforms provide the cost-efficiency of packet and optical to create a secure, flexible, and scalable infrastructure from LAN to WAN and support the transport of IP-based and legacy applications on one network.

Cloud Computing

Cloud adoption in the government is driven by cloud-first mandates, cost-saving efforts, and the increased need for collaboration among agencies. Government agencies and research and educational institutions increasingly rely on distributed computing structures to support this transition to cloud solutions. Ciena's networking solutions provide extremely high capacity scale—up to 400 Gb/s per optical wavelength—while enabling virtual WAN and on-demand programmability to schedule bandwidth more efficiently and increase overall bandwidth utilization.
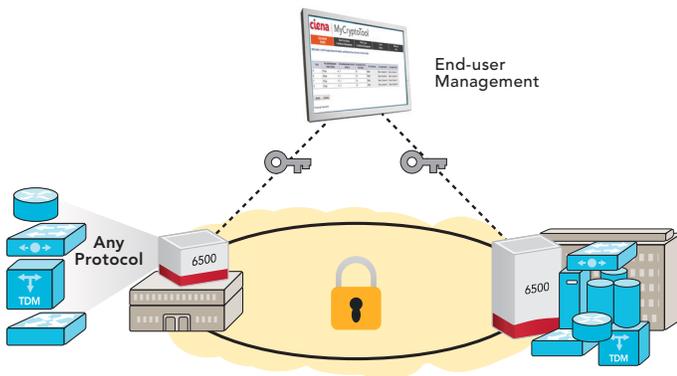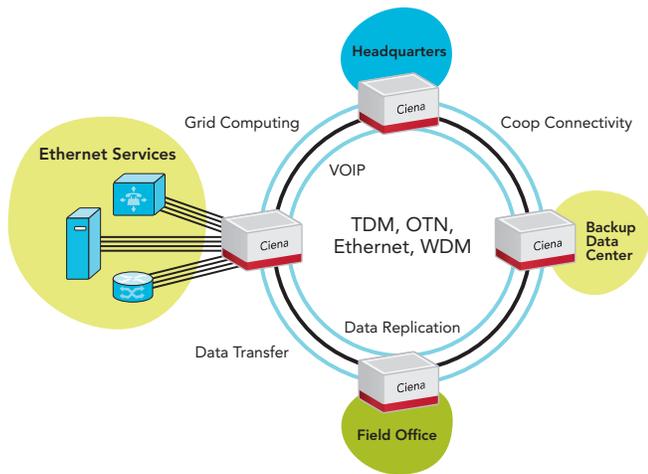
Figure 2: Ethernet access and aggregation for campus/base network scale, operation efficiency, and responsive service delivery

Data Center Networking

Data centers are becoming content centers. As government agencies increase their reliance on information and the volume, velocity, and variety of data grows, the ability to scale quickly and cost-effectively becomes more critical. In government applications, this data could be sensitive national security information or taxpayer or public healthcare records. Our Datacenter Connect solution offers a set of flexible platforms with a secure and highly resilient big data scale, allowing for the convergence of multiple applications or data protocols onto a single network. These solutions let agencies reduce operating costs while maintaining a comprehensive Continuity of Operations/Disaster Recovery (COOP/DR) plan.
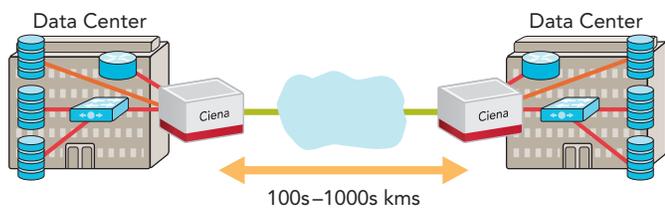

Figure 3: Cost-effective scale and dynamic bandwidth allocation for agile data center interconnectivity

Software-driven Network Virutalization

The communications industry is undergoing a transformation in technology that will likely be as impactful as the transition from analog communications to digital in the mid 1980s. This transformation, often cloaked behind industry terms like SDN and NFV, is the wide scale virtualization of network infrastructure. SDN is the disaggregation of the control plane from the data plane of a network such that network operators are able to exercise control of network behavior via well-defined Application Interfaces (APIs). NFV is the ability to virtualize a number of network appliances, previously instantiated in separate hardware platforms, and realize these functions using generic x86 based compute hardware. NFV also generally refers to the ability of the network to distribute and manage these virtual appliances. Our Blue Planet software features vendor-agnostic solutions that enable intelligent network optimization, multi-layer and -vendor orchestration across network and data center domains, and NFV orchestration to deliver true network virtualization and single-pane-of-glass provisioning and management in a modular, open architecture design that eliminates vendor lock-in.
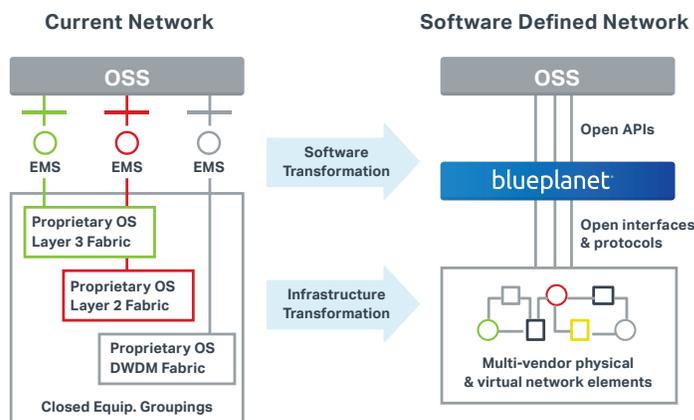

Figure 4: Evolution from static, inflexible networks to agile automated networks, starts with software.

Portfolio Overview

The solutions described above utilize elements of a broad hardware and software networking portfolio. Additionally, Ciena offers comprehensive network services to aid in the design, deployment, and operation of any network.

Hardware

Our OPn architecture approach centers on the convergence of network-layer functionality into a single modular and scalable platform, minimizing space and power while enabling multi-layer provisioning and management.

Packet and Optical Networking Infrastructure Convergence

Ciena is a worldwide leader in optical transport and switching technology solutions, including a portfolio of WDM transport products that provides a scalable optical foundation for transport networks. Our Converged Packet-Optical products comprise switching, transport, and software components. Our core and metro core products support any mix of Ethernet/MPLS, OTN, WDM, and SONET/SDH switching to facilitate the transition to a service-enabled infrastructure.

The 6500 Packet-Optical Platform consolidates multiple layers of networking functions and platforms, addressing a wide variety of applications with a reduced number of nodes. The 6500 supports coherent 40G/100G interfaces, enabling 10 times more traffic capacity even on existing network infrastructure. Our 6500 technology innovations simplify networking. With full integration of TDM, WDM, and Ethernet capabilities into the platform, the 6500 provides the cost-efficiency and service flexibility you need to seamlessly evolve your network toward resilient and optimized Ethernet-based infrastructures.

Ethernet Access and Aggregation

Our campus and metro Ethernet solutions combine intelligent devices and software to create the infrastructure necessary for low-touch, high-velocity Ethernet access and metro networks. Our carrier-grade Ethernet products include aggregation and service delivery switches sized to match the needs of a specific application and grow bandwidth as needed within the platform to future-proof the network infrastructure. Service delivery switches are available with a range of 10/100 Ethernet, GbE, and 10GbE physical port counts. Service aggregation switches provide multi-terabit programmable Ethernet-over-DWDM packet switching and 10/100 Ethernet/GbE/10GbE/100GbE aggregation that revolutionizes the capital and operational economics of metro networks.

Simplified Management

Our zero-touch provisioning capabilities allow for fast, simple, and secure deployment and provisioning by eliminating manual, error-prone operational procedures. And the extensive OAM feature suite provides real-time intelligence of network activity. This embedded, software-based performance monitoring and OAM feature automatically monitors and troubleshoots the data path, confirming link and service throughput and quality via integrated line testing tools to provide faster fault isolation and service restoration.

Software

Ciena has embraced an open, infrastructure vendor-agnostic vision of future networks. In addition to Ciena-specific management tools, Blue Planet provides a single vendor-agnostic SDN management platform that simplifies the creation, automation, and delivery of services from end to end across physical and virtual domains. Blue Planet reduces operational costs by abstracting network complexity, and drives greater competitive advantage through a level of previously unachievable service programmability. With Blue Planet, you can orchestrate existing SDN controllers and management platforms (cloud managers, network managers, element managers) as one environment. This will enable a true end-to-end services deployment capability across hardware and software domains, combining NFV with traditional hardware-based appliances. Blue Planet provides the single-pane-of-glass view to help break down management silos and enable network operators to provision and manage services across networks composed of both legacy and new SDN/NFV-enabled components.

With Blue Planet, you can innovate service delivery using your existing networks—today:

• SDN management and control enable multi-layer, multi-vendor network infrastructure control and management

• NFV orchestration can immediately reduce dependence on single-purpose appliances by implementing their functions in software that runs on industry-standard servers, networks, and storage platforms

• Multi-Domain Service Orchestration (MDSO) enables end-to-end service automation across multiple technologies (physical or virtual) and vendor domains (network infrastructure and data center)

Network modernization will incrementally support changing mission demands. Innovative evolution of the network starts with software. Blue Planet is purpose-built for network operators, enabling users to transform and expand mission capabilities by accelerating the delivery of new on-demand services and reducing cost and complexity through automation.

Ciena Specialist Services

More than just installation and turn-up, Ciena offers a comprehensive services practice that helps agencies design, plan, build, optimize, and operate networks. Our services provide the flexibility and high degree of expertise needed to address your unique requirements.

Consultant and Resident Engineering

Ciena's engineers can provide expertise and experience, full-time or hourly, in a variety of operational and project roles to complement or supplement your existing skills and resources. The three engineering levels are:

• Technical assistance with project-related activities through planning, deployment, activation, operations, and optimization services via consultative customer interaction

• Technical and project leadership to ensure solutions are designed and delivered according to Ciena best practices and key customer technical and business requirements

• Consultative leadership to guide strategic technical, operational, and business programs

Remote Turn-up & Test Support

Our remote Turn-up & Test Support service provides real-time access to Ciena specialists who will assist your on-site resources during turn-up and test activities. This is a lower-cost option that maximizes existing staff while offering a safety net to mitigate challenges in the field.

Network Transformation

Ciena can conduct a detailed analysis of transport network configuration and capacity at strategic and tactical levels, then make recommendations to improve operational efficiency, reduce operational expenditures, and highlight opportunities to reduce or defer costs.

Reconfiguration & Migration

We can perform highly complex reconfiguration procedures for new or in-service networks with minimal downtime. Our Reconfiguration & Migration service may include traffic reconfiguration, as required, to move traffic to the reconfigured network elements. We provide remote or on-site specialists in coordinating the MOP implementation. This service includes development of a reconfiguration strategy, a high-level plan, and custom step-by-step procedures (MOP) that include the following: reconfiguration plan, traffic roll plan, execution support plan, and coordination of MOP deployment.

Innovation leadership

• Ciena holds 2,000+ patents worldwide

• Technological firsts include:

  • 100G coherent optics solution

  • OTN control plane on an optical switch

  • Carrier Ethernet aggregation switch supporting a virtualized switching architecture

  • Multi-vendor SDN/NFV ecosystem

  • Multi-domain (network, data center, NFV) orchestrator

  • Intelligent optical core switch

  • Packet-optical convergence platform

Market share leadership

• Consistent leader* in:

  • Packet optical

  • Metro WDM

  • Data center interconnect

  • Next-generation transport and switching

  • Carrier Ethernet access

* Dell'Oro Optical Networks, 3Q 2015 Report; Ovum DCI Fy2014; CEAP Quarterly Market Tracker, July 2015

Network Architecture Design

This service offers an end-to-end network architecture tailored to meet specific needs. Three implementation options are available: Network Optimization Design, Network Expansion Design, and Network Deployment Design.

Detailed Network Design

The product of this service is a Detailed Network Design document that contains: network-specific configuration, connectivity drawings, card slotting information, amplifier provisioning, nodal commissioning data, expert DOC design for network, traffic profile analysis, sync design, a definition of routing architecture and IP addressing, OAM design, and RPR design.

Program Management

Our program managers can facilitate complex custom deployments involving multiple third-party products and applications across a number of territories. Through a methodical yet flexible approach, these program managers will reduce the risk of project slippage and cost overrun.

Network Solutions

Through consultation with your engineering teams, We will develop a custom field-testing program for both Ciena and non-Ciena network elements to meet specific requirements for coverage and service type.

Test Planning & Verification

Our specialists will work with your engineering team to plan end-to-end testing, which typically includes external synchronization, traffic and protocols, database backup, protection switching, and other operational testing as required.

Technology Introduction

This service provides an end-to-end approach, including network discovery, verification and testing, deployment planning, deployment, migration, and post-deployment verification.

Ciena Government Solutions, Inc.

Ciena Government Solutions, Inc. (CGSI) is a wholly owned Ciena subsidiary serving the unique networking infrastructure needs of the government sector. CGSI leverages Ciena's portfolio to provide comprehensive solutions tailored to federal civilian, defense, and research and education networks.

CGSI helps government agencies meet their missions by using the network as a strategic asset. Ciena's technologies, solutions, and services allow agencies to improve mission-effectiveness. CGSI enables rapid adoption of new service models such as cloud computing, inter- or intra-agency collaboration, SDN, NFV, cybersecurity, COOP/DR plans, and data center consolidation—all while helping reduce operating costs. CGSI solutions are an integral part of both government private-build and managed-service networks.

The CGSI team includes technology business professionals well-versed in the unique needs of government networks. Much more than an equipment vendor, CGSI is a true networking solution provider for government.

Doing Business with Ciena

Ciena works with its partners to develop solutions customized to meet government mission requirements. The majority of CGSI business is enabled through Ciena's Partner community. CGSI leverages Partners' reach to create a force multiplier effect that supplements Ciena's own account managers and solutions engineers to ensure the highest customer responsiveness. Ciena Partners also bring value through their government contract vehicles; Government-wide Acquisition Contracts (GWACs) or Indefinite Delivery/Indefinite Quantity (IDIQ) contracts, including Networx; SEWP; Government Services Administration (GSA) schedules; and other competed vehicles the government can leverage. The variety of Ciena Partners can help the government meet contracting objectives while delivering outstanding value.

To learn more about Ciena Certified Partners or the BizConnect Partner program, please contact Mark Budniewski at mbudniew@cgsi.ciena.com or visit our Partner site at www.ciena.com/partners/our-partners.

Contact us

To learn more about Ciena Government Solutions and how Ciena can help solve networking challenges, please contact us at 1-800-207-3714, or visit us at www.ciena.com/government.